

WHAT IS CLAIMED IS:

1 1. A secondary battery comprising:
2 an electrode assembly including a positive electrode plate, a negative electrode plate, and
3 a separator interposed between the positive and negative electrode plates;
4 a metallic electrically conducting can, adapted to accommodate both the electrode assembly
5 and an electrolytic solution, the can including a side opening;
6 a cap assembly including a cap plate and an electrode port, the cap plate being coupled to
7 the side opening of the can and having at least one aperture in a side portion thereof, the electrode
8 port being coupled to the cap plate via a gasket adapted to insulate the electrode port from the cap
9 plate, the electrode port being connected to one of positive and negative electrode tabs respectively
10 extending from the positive and the negative electrode plates, and
11 a lead plate adapted to be pressed into the at least one aperture of the cap plate, and adapted
12 to be connected to a safety device.

1 2. The secondary battery of claim 1, wherein the cap plate comprises one of aluminum
2 and an aluminum alloy.

1 3. The secondary battery of claim 1, wherein the lead plate comprises nickel.

1 4. The secondary battery of claim 1, wherein the lead plate and the safety device are

connected via a port member, the port member being resistance welded to the lead plate.

5. The secondary battery of claim 4, wherein the port member comprises nickel.

6. The secondary battery of claim 1, further comprising a protecting case arranged between the electrode assembly and the cap assembly.

7. A secondary battery comprising:
an electrode assembly including a positive electrode plate, a negative electrode plate, and a separator interposed between the positive and negative electrode plates;
a metallic electrically conducting can, adapted to accommodate the electrode assembly and an electrolytic solution, the can having at least one cavity in an external bottom surface thereof and having a side opening;
a cap assembly adapted to be coupled to the side opening of the can; and
a lead plate adapted to be pressed into the at least one cavity of the can, the lead plate being connected to a safety device.

8. The secondary battery of claim 7, wherein the can comprises one of aluminum and an aluminum alloy.

9. The secondary battery of claim 7, wherein the lead plate comprises nickel.

1 10. The secondary battery of claim 7, wherein the lead plate and the safety device are
2 connected via a port member, the port member being resistance welded to the lead plate.

1 11. The secondary battery of claim 4, wherein the port member comprises nickel.

1 12. The secondary battery of claim 7, wherein the cap assembly comprises:
2 a cap plate adapted to be coupled to the side opening of the can; and
3 an electrode port adapted to be coupled to the cap plate via a gasket adapted to insulate the
4 electrode port from the cap plate, the electrode port being connected to one of positive and
5 negative electrode tabs respectively extending from the positive and negative electrode plates.

1 13. A secondary battery comprising:
2 an electrode assembly including at least two electrode tabs extending therefrom;
3 an electrically conducting can, adapted to accommodate the electrode assembly, the can
4 including a side opening;
5 a cap assembly including a cap plate and an electrode port, the cap plate being coupled to
6 the side opening of the can and having at least one aperture in a side portion thereof, the electrode
7 port being connected to one of the at least two electrode tabs, and
8 a lead plate adapted to be pressed into the at least one aperture of the cap plate, and adapted
9 to be connected to a safety device.

1 14. The secondary battery of claim 13, wherein the cap plate comprises one of
2 aluminum and an aluminum alloy.

1 15. The secondary battery of claim 13, wherein the lead plate comprises nickel.

1 16. The secondary battery of claim 13, wherein the lead plate and the safety device are
2 connected via a port member welded to the lead plate.

1 17. The secondary battery of claim 16, wherein the port member comprises nickel.

1 18. The secondary battery of claim 13, further comprising a protecting case arranged
2 between the electrode assembly and the cap assembly.

1 19. A secondary battery comprising:
2 an electrode assembly;
3 an electrically conducting can, adapted to accommodate the electrode assembly, the can
4 having at least one cavity in an external bottom surface thereof and having a side opening;
5 a cap assembly adapted to be coupled to the side opening of the can; and
6 a lead plate adapted to be pressed into the at least one cavity of the can, the lead plate being
7 connected to a safety device.

1 20. The secondary battery of claim 19, wherein the can comprises one of aluminum and
2 an aluminum alloy.

1 21. The secondary battery of claim 19, wherein the lead plate comprises nickel.

1 22. The secondary battery of claim 19, wherein the lead plate and the safety device are
2 connected via a port member welded to the lead plate.

1 23. The secondary battery of claim 22, wherein the port member comprises nickel.

1 24. The secondary battery of claim 19, wherein the cap assembly comprises:
2 a cap plate adapted to be coupled to the side opening of the can; and
3 an electrode port adapted to be coupled to the cap plate and connected to one of at least two
4 electrode tabs extending from the electrode assembly.

1 25. A method of manufacturing a secondary battery, the method comprising:
2 forming an electrode assembly;
3 forming an electrically conducting can, the can arranged to accommodate the electrode
4 assembly;
5 forming a side opening in the can;

6 forming a cap assembly including a cap plate and an electrode port;
7 coupling the cap plate to the side opening of the can;
8 forming at least one aperture in a side portion of the cap plate;
9 coupling the electrode port to the cap plate;
10 connecting the electrode port to one of at least two electrode tabs extending from the
11 electrode assembly;
12 pressing a lead plate into the at least one aperture of the cap plate; and
13 connecting the lead plate to a safety device.

1 26. The method of claim 25, further comprising forming the cap plate of one of
2 aluminum and an aluminum alloy.

1 27. The method of claim 25, further comprising forming the lead plate of nickel.

1 28. The method of claim 25, further comprising connecting the lead plate to the safety
2 device with a port member welded to the lead plate.

1 29. The method of claim 28, further comprising forming the port member of nickel.

1 30. The method of claim 25, further comprising forming a protecting case between the
2 electrode assembly and the cap assembly.

1 31. A method of manufacturing a secondary battery, the method comprising:
2 forming an electrode assembly;
3 forming an electrically conducting can, the can being adapted to accommodate the electrode
4 assembly;
5 forming at least one cavity in an external bottom surface of the can;
6 forming a side opening in the can;
7 forming a cap assembly;
8 coupling the cap assembly to the side opening of the can;
9 pressing a lead plate into the at least one cavity of the can; and
10 connecting the lead plate to a safety device.

1 32. The method of claim 31, further comprising forming the can of one of aluminum
2 and an aluminum alloy.

1 33. The method of claim 31, further comprising forming the lead plate of nickel.

1 34. The method of claim 31, further comprising connecting the lead plate to the safety
2 device with a port member welded to the lead plate.

1 35. The method of claim 34, further comprising forming the port member of nickel.

1 36. The method of claim 31, further comprising:
2 forming the cap assembly to include a cap plate coupled to the side opening of the can;
3 forming the cap assembly to include an electrode port coupled to the cap plate; and
4 connecting the electrode port to one of at least two electrode tabs extending from the
5 electrode assembly.